Final Report

for

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for the

Support of the Third Solar Wind Conference

Principal Investigator: C.T. Russell

Co-investigators: P.J. Coleman, Jr.
C.P. Sonett

Prepared by

Christopher T. Russell
Institute of Geophysics and Planetary Physics
University of California
Los Angeles, California 90024

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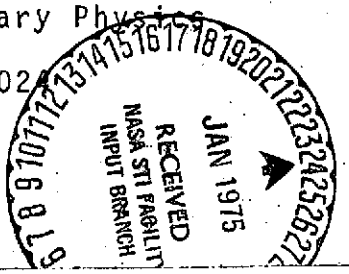

The Third Solar Wind Conference was convened at the Asilomar Conference Grounds, Pacific Grove, March 25-29, 1974, almost exactly three years after the previous conference, under the auspices of the Universities of California and Arizona. The conference both surveyed the increase in understanding of the solar wind over the past three years and pursued in depth a number of solar wind related topics not covered adequately in 1971. There were more than 120 participants, over one-quarter of whom were from countries other than the United States. The conference consisted of nine sessions: Solar Abundances; History and Evolution; Solar Corona; Macroscopic Properties; Cosmic Rays as a Probe of the Solar Wind; Spatial Gradients; Stellar Winds; Microscopic Properties; and Solar Wind Interactions. The sessions consisted mainly of invited reviews followed by discussion, with shorter contributions scheduled at the end of the sessions as time permitted. The proceedings (1) were published in the Fall of 1974 and are available in a soft-cover photo-offset edition from the Institute of Geophysics, UCLA for a nominal charge. The proceedings contain the invited talks and contributed talks of those authors who submitted manuscripts. Over 80% did. Some of the longer reviews have been submitted for publication to the Reviews of Geophysics and Planetary Physics and hence do not appear in the present volume. Two summaries of the conference have been prepared: one for the journal Earth and

Extraterrestrial Sciences (2) which specializes in conference summaries and one in Space Science Reviews (3) which is publishing the proceedings of the STP symposium in Brazil at which a review of the Third Solar Wind conference was presented. Attached are the program of the invited talks at the conference and the table of contents of the proceedings.

Bibliography

(1) C.T. Russell (editor), Solar Wind Three, 478 pp., Institute of Geophysics, UCLA, Los Angeles, 1974.

(2) C.T. Russell, The Third Solar Wind Conference, March 25-29, 1974, Earth and Extraterrestrial Sciences, in press, 1975.

(3) C.T. Russell, The Third Solar Wind Conference: A Summary, Space Sci. Rev., in press, 1975.

PROGRAM

Third Solar Wind Conference
Asilomar Conference Grounds
Pacific Grove, California
March 25-29, 1974

Sponsors: American Geophysical Union
National Aeronautics and Space Administration
University of California
University of Arizona

Opening Remarks 0830

I. The Problem of Solar Abundances Monday AM

"A critical examination of our knowledge of solar abundances from the theory of nucleosynthesis to solar wind and solar cosmic ray observations".

Chairman: L.H. Aller
University of California
Los Angeles

Solar Abundances: A Nuclear Astrophysicist's Viewpoint 0845
W.A. Fowler
California Institute of Technology

Coffee 0945

Coronal and Solar Wind Abundances 1000
J. Hirshberg
High Altitude Observatory

Solar Cosmic Ray Observations 1100
D. Hovestadt
Max Planck Institut, Garching

II. The History and Evolution of the Solar Wind — Monday PM

"An examination of the evidence for changes in the solar wind properties over the history of the solar system".

Chairman: J.W. Chamberlain
Rice University

The Primordial Solar Wind C.P. Sonett University of Arizona	1330
Paleontology of Cosmic Rays and Solar Flares P.B. Price University of California, Berkeley	1430
Coffee	1530
The Solar Wind as Deduced from Lunar Samples P. Eberhardt University of Berne, Switzerland	1545
The Hydrogen/Deuterium Ratio S. Epstein California Institute of Technology	1645

III. The Structure and Dynamics of the Solar Corona — Tuesday AM

"A study of the lower boundary of the solar wind and how the structure and dynamics of this region influences the solar wind".

Chairman:

Solar Radio Burst Observations R.G. Stone Goddard Space Flight Center	0830
Direct Observations of Magnetic Bottles J. Gosling High Altitude Observatory	0915
Coffee	0945

Coronal Structure and the Solar Wind — 1000
E.C. Roelof
University of New Hampshire

Soft X-ray Observations of Coronal Holes — 1100
A. Kreiger, G. Vaiana and A. Timothy
American Science and Engineering

EUV Observations of Coronal Holes — 1115
R.W. Noyes, G. Withbroe and E. Reeves
Harvard College Observatory

IV. Macroscopic Properties of the Solar Wind — Tuesday PM

"The solar wind as a magnetized fluid".

Chairman: M. Dryer
NOAA/ERL

Solar Wind Structure and Dynamics — 1330
A.J. Hundhausen
High Altitude Observatory

Discontinuities in the Solar Wind — 1430
G.L. Siscoe
University of California, Los Angeles

Coffee — 1530

Suprathermal Particles — 1545
R.P. Lin
University of California, Berkeley

Interpenetrating Solar Wind Streams — 1615
W.C. Feldman
Los Alamos Scientific Laboratory

Numerical Simulation of Observed Interplanetary Shock Ensembles — 1630
R.S. Steinolfson, M. Dryer and Y. Nakagawa
National Oceanographic and Atmospheric Administration

Neutral Sheet Observations — 1645
V. Formisano
LRTSPNS/CNR, Frascati, Italy

Long-term Solar Wind Variations — 1655
G. Moreno and C. Signorini
LRTSPNS/CNR, Frascati, Italy

The STIP Study Group — 1700
M. Dryer
National Oceanographic and
Atmospheric Administration

V. Cosmic Rays as a Probe of the Solar Wind — Wednesday AM

"An investigation of what we can learn about the solar wind from studies of the behavior of high energy particles".

Chairman: J.R. Jokipii
University of
Arizona

Introductory Remarks — 0830
J.R. Jokipii

Review of Cosmic Ray Transport — 0840
H. Volk
Max Planck Institut, Garching

Contributions on theory applied to solar wind and interpretation of observations — 0930

Coffee — 0950

Panel on Cosmic Ray Gradient — 1005

Observations
F.B. MacDonald, GSFC
J.A. Simpson, University of Chicago
J.A. Van Allen, University of Iowa

Contributed observations — 1105

Impact of recent observations on theory — 1120
L. Fisk, GSFC
F.B. MacDonald, GSFC
J.A. Simpson, University of Chicago
J.A. Van Allen, University of Iowa
H. Volk, Max Planck Institut

Contributions — 1145

VI. Stellar Winds — Wednesday PM

"Placing the solar wind in context".

Chairman: B. Durney
National Center for
Atmospheric Research

Stellar Winds — 1330
P. Roberts
University of Newcastle

VII. Spatial Gradients — Wednesday PM

"An examination of the variation of the solar wind properties with radial distance and latitude".

Chairman: Marcia Neugebauer
Jet Propulsion Laboratories

Radial Gradients — 1430
E.J. Smith
Jet Propulsion Laboratory

Coffee — 1530

The Distant Solar Wind — 1545
J. Wolfe
Ames Research Center

Latitude Dependencies — 1600
R.L. Rosenberg and C.R. Winge
University of California, Los Angeles

Three Dimensional Modeling — 1630
S. Suess
National Oceanographic and
Atmospheric Administration

VIII. Microscopic Properties of the Solar Wind — Thursday AM

"An examination of the role of waves, turbulence and heat conduction in determining the observed properties of the solar wind".

Chairman: R.W. Fredricks
TRW Systems Group

Waves and Turbulence — 0830
J.V. Hollweg
High Altitude Observatory

Heat Conduction — 0930
M.D. Montgomery and W.C. Feldman
Los Alamos Scientific Laboratory

Coffee — 1000

Simulation of Colliding Solar Wind Streams — 1015
K. Papadopoulous
University of Maryland

Interplanetary Scintillations — 1030
B. Rickett
University of California, San Diego

IX. Solar Wind Interactions: 1 — Thursday PM

"A comparison of the interaction of the solar wind with the various classes of objects in the solar wind".

Chairman: J.C. Brandt
Goddard Space Flight Center

Cometary Interactions — 1330
L. Biermann
Max Planck Institut, Munich

Interaction with Comet Kohoutek — 1430
S. Maran and J.C. Brandt
Goddard Space Flight Center

Interaction with Venus — 1445
M. Wallis
Oxford, England

Coffee — 1515

Interaction with Mars — 1530
P. Cloutier
Rice University

Lunar Interaction — 1600
G. Schubert
University of California, Los Angeles

X. Solar Wind Interactions: 2 — Friday AM

Chairman: V. Formisano
Laboratorio Plasma
Spazio, Frascati

The Terrestrial Bow Shock E.W. Greenstadt TRW Systems	0830
The Terrestrial Magnetosphere and Comparison With Jupiter's F.C. Michel Rice University	0910
Coffee	0945
The Observed Interaction with Jupiter	1000
1. The Jovian Bow Shock	
2. The Jovian Magnetosphere	1030
Concluding Remarks	

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - continued

TABLE OF CONTENTS - continued

TABLE OF CONTENTS - continued

TABLE OF CONTENTS - continued